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Japanese Utility Model (Jitsuyo Shin'an); Patent Registration No. U3085227; Registration Date: January 30, 2002; Application No. U2001-6572; Application Date: October 9, 2001; Int. Cl.⁷: G09F 9/00 G02B 5/00 H04M 1/02; Inventor: Hiroshi Ueda; Applicant: Suncrest Co., Ltd.; Japanese Title: Disuprei yoh Firutah (A Display Filter)

Specification

Title of the Invention: A Display Filter

What is claimed is:

[Claim 1] A display filter characterized in that, as for a filter wherein a transparent protecting sheet 2 is laminated onto a light guide film 1 consisting of transparent silicone rubber strips 3 and light blocking strips 4 arranged in an alternate fashion, the back side of the light guide film 1 is adhered onto the surface of a display with adhesion of silicon rubber, and snooping from the side is prevented, a decorative display 5 such as patterns and characters is printed on the aforementioned protecting sheet 2 applying clear fluorescent paint which emits light when exposed to blacklight.

[Claim 2]

The display filter of Claim 1, characterized in that the decorative display 5 such as patterns and characters is printed applying clear luminous paint which emits stored radiated light in the dark, instead of applying fluorescent paint.

[Claim 3]

The display filter of Claim 1, characterized in that the aforementioned decorative display 5 is printed applying clear coloring paint which develops colors when exposed to natural light.

[Brief Explanation of Drawings]

[Figure 1]

Schematic perspective view of the display filter, pertaining to the present invention

[Figure 2]

Cross-sectioned top view of the aforementioned display filter, illustrating its operation

[Figure 3]

Front elevation view of the aforementioned display filter, illustrating its state of attachment on a mobile telephone

[Figure 4]

Side perspective view of the aforementioned display filter, illustrating its state of screen display

[Description of the Reference Numbers]

1. Light guide film
2. Protecting sheet
3. Transparent strips
4. Light blocking strips
5. Decorative display

[Detailed Explanation of the Invention]

[0001]

[Technical Field of the Invention]

The present invention pertains to a filter attached to a mobile telephone display for snooping prevention.

[0002]

[Prior Art]

The present applicant, with Application Number U2001-2460 (Registration No. U3081-299), proposed a filter comprising a light guide film made of transparent silicone rubber strips and light blocking strips which are arranged in an alternate fashion, and a transparent protecting film laminating onto the top surface of the light guide film, wherein the back side of the light guide film is mirror finished and attached to a display.

[0003]

When this filter is adhered to the surface of the display with adhesion of silicone rubber, the filter has advantages that it can prevent snooping from the side angle and that it can be adhered over repeatedly since the material of the filter comprises no adhesive tape.

[0004]

[The Problems that the Invention is to Solve]

However, the aforementioned filter, when attached to a mobile telephone display, just blocks light and lacks a visual attraction, which made it unappealing as a mobile telephone accessory.

[0005]

Therefore, the purpose of the present invention is to provide the display filter which can prevent snooping from the side angle and can also show patterns and characters in various ways depending on the condition of light rays.

[0006]

[Means to Solve the Problems]

In order to eliminate the aforementioned problems, relating to the filter wherein the protecting sheet is laminated onto the light guide film formed by transparent silicone rubber strips and light blocking strips arranged in an alternate fashion, the backside of

the light guide film is attached on the surface of the display, and snooping from the side angle is prevented, in the present invention the decorative display such as patterns and characters is printed on the aforementioned protecting sheet applying clear fluorescent paint which emits light in blacklight radiating near ultraviolet rays.

[0007]

When the aforementioned filter is attached to the display, the content of the screen display is visible as it is from the front, but invisible from the side angle. When exposed to blacklight, only patterns and characters drawn on the surface stand out.

[0008]

When the decorative display of patterns and characters is printed applying clear luminous paint which emits stored light in the dark instead of applying fluorescent paint, only patterns and characters stand out viewed from the side angle in the dark.

[0009]

Moreover, when the decorative display of patterns and characters is printed applying clear coloring paint which develops colors in natural light instead of applying fluorescent paint, only patterns and characters are visible in colors from the side angle in daylight outside or in normal lighting.

[0010]

[Embodiment of the Invention]

Embodiment of the present invention is explained as follows based on the attached drawings.

[0011]

A filter F, pertaining to the present invention as shown in Figure 1, possesses the structure of the light guide film 1 and the protecting sheet 2 laminating on the light guide film 1. The light guide film 1 consists of series of clear silicone rubber strips and light blocking strips arranged in an alternate fashion. The back side of the light guide film 1 is adhesive and smoothed to have an uneven surface with a mirror-like finishing. The protecting sheet 2 is made with clear polycarbonate.

[0012]

The decorative display 5 is printed on the surface of the aforementioned protecting sheet 2 applying clear fluorescent paint which emits light in blacklight. As the decorative display 5, characters in addition to patterns can also be printed particularly for promoting products.

[0013]

As shown in Figure 2, the view angle θ of the filter F is limited within a certain degree. Since the decorative display 5 is transparent, light transmission properties are maintained at a certain level within a view angle θ .

[0014]

As shown in Figure 3, the content of the screen display can be seen as it is from the front, when the aforementioned filter F is attached onto a screen display of a mobile telephone P. Under this condition, the decorative display 5 emits light when exposed to blacklight. Nevertheless, the content of the screen display never becomes invisible since lighting in the display is brighter.

[0015]

On the other hand, shown in the figure 4, when viewed from the side angle of the mobile telephone P, the content of the screen display is invisible since the filter F prevents snooping. When exposed to blacklight under this condition, the decorative display 5 emits light and patterns and characters stand out.

[0016]

When the decorative display 5 is printed applying clear luminous paint which emits stored radiated light in the dark, instead of applying fluorescent paint, only patterns and characters stand out viewed from the side in the dark.

[0017]

Moreover, when patterns and characters of the decorative display 5 are printed applying clear coloring paint which develops colors when exposed to natural light, instead of applying fluorescent paint, only patterns and characters can be seen in color viewed from the side angle outdoors or under normal lighting.

[0018]

[Effect of the Invention]

As mentioned above, in the present invention, since the decorative display such as patterns and characters is printed on the filter preventing snooping from the side applying clear fluorescent paint which emits light in blacklight, the content of the screen display is visible as it is from the front and is invisible from the side angle. Only patterns and characters drawn on the surface stand out when exposed to blacklight.

[0019]

Furthermore, when the decorative display such as pattern and characters is printed applying clear luminous paint which emits stored radiated light in the dark, only patterns and characters stand out viewed from the side angle in the dark.

[0020]

In addition, when the decorative display such as patterns and characters is printed applying clear coloring paint which develops colors exposed to natural light, only patterns and characters can be seen in color viewed from the side angle outdoors and under normal lighting.

[0021]

Consequently, the aforementioned filter, as a mobile telephone accessory, is expected to have the effect to attract young consumers.